

# AN APPROACH TO STUDY HEALTH EFFECTS OF ENVIRONMENTAL CONTAMINATION FROM OIL REFINERIES IN A LONGITUDINAL PERSPECTIVE

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**Background and Aims:** In 2010 the world total number of oil refineries was more than 650, about 200 in Europe. Oil refineries are complex industrial sites that manage large amounts of raw materials and products. Refineries generate emissions of many different pollutants. Most of the emissions are into the air.

The aim of this contribution is to describe an approach developed to study the relationship between over-time emissions from oil refineries, and over-time health profiles of populations living near the plants. This approach was used to study refineries spread over the Italian territory.

**Methods:** For each plant constructed in Italy, the following data were collected: year of operation start off and close down; annual oil consumption; and, where available, type of refinery cycle. Estimates of emissions into the air of several pollutants were used to categorize plants. Populations to be studied through a small-area approach were identified by an *ad hoc* GIS model. Outcomes of *a priori* interest were selected through a review of the available epidemiological evidence.

**Results:** Forty-five refinery plants were constructed in Italy in the last century. Most of the plants started operations in the '60s, and some were closed down after one or more decades of activity. Oil consumption from 1948 up to 2007 was collected for each plant. Nearly 15 plants were selected to study time trends and time-related variables for risk of lung cancer, some hematopoietic neoplasms, respiratory system diseases, neurological diseases and perinatal conditions in selected populations.

**Conclusions:** The proposed approach has the potential to go beyond the limits of previous studies that could not evaluate refineries health impact over time. It could be used in other countries and is suitable to meta-analyses.

## References:

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